

HIGH-FREQUENCY TWO-DIMENSIONAL ANTENNA AND ASSOCIATED DOWN-CONVERSION METHOD

ABSTRACT OF THE DISCLOSURE

5 A high-frequency two-dimensional antenna includes a plurality of dual-
frequency antennas configured to receive signals having first and second frequencies
above the microwave band of the electromagnetic spectrum. The dual-frequency
antennas of the two-dimensional antenna are arrayed to an effective length to re-
radiate signals at a third frequency, which is down-converted from the first and
10 second frequencies. Each dual-frequency antenna of the two-dimensional antenna
includes a plurality of dipole antennas, and a plurality of nonlinear resonant circuits.
The nonlinear resonant circuits interconnect the dipole antennas and are configured to
permit re-radiation of signals having the third frequency over the effective length. A
method of down-converting signals having at least first and second electromagnetic
15 radiation frequencies is also provided.